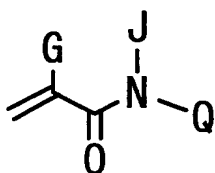


Claims

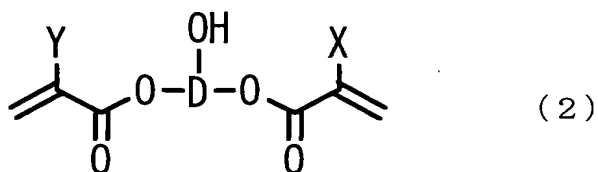
1. An antifouling material comprising a copolymer obtained by copolymerizing a composition containing a compound represented by the general formula (1):



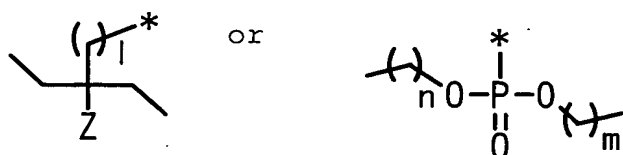
(1)

(wherein G represents a hydrogen atom or a methyl group, J and Q independently represent a hydrogen atom, a methyl group, $-\text{CH}_2\text{OH}$, $-\text{CH}_2\text{CH}_2\text{OH}$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$, or $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$, with the proviso that the case where J and Q are simultaneously a combination of a hydrogen atom and a hydrogen atom, a combination of a hydrogen atom and a methyl group or a combination of a methyl group and a methyl group is excluded) and a compound having at least two (meth)acryloyl groups in the molecule.

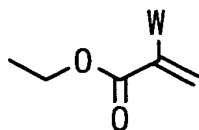
2. The antifouling material according to claim 1, wherein the compound having at least two (meth)acryloyl groups in the molecule according to claim 1 is any compound selected from compounds represented by the following general formula (2) to general formula (5):



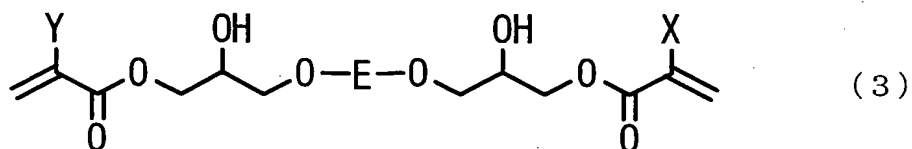
(wherein X and Y independently represent a hydrogen atom or a methyl group, D represents



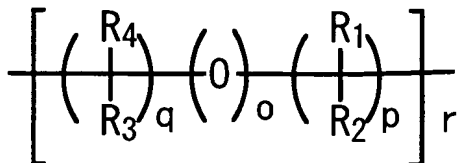
l represents 0 or 1, n and m independently represent an integer from 1 to 6, Z represents a hydrogen atom or



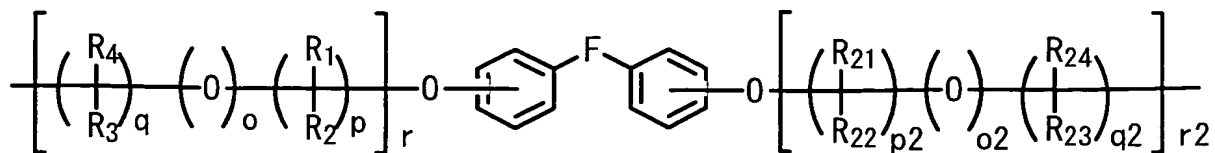
W represents a hydrogen atom or a methyl group, and the asterisk represents a bond which binds to the hydroxyl group);



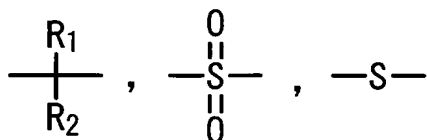
(wherein E represents



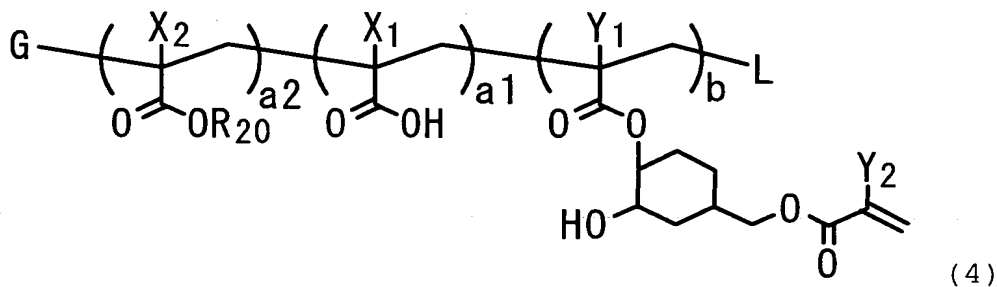
or



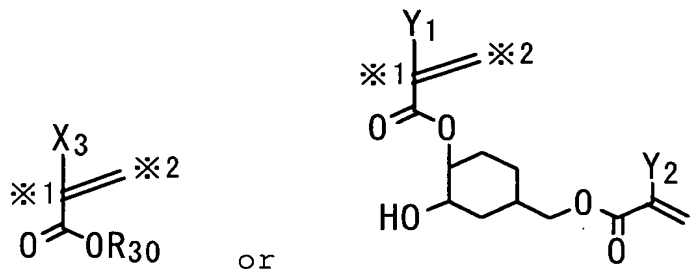
F represents one type selected from



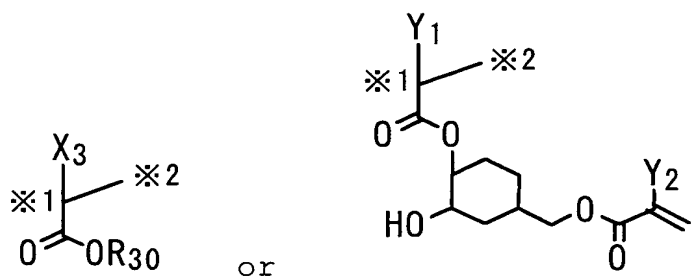
R₁ to R₄, R₂₁ to R₂₄ independently represent a hydrogen atom, a methyl group or a hydroxyl group, o and o₂ represent 0 or 1, and p, q, r, p₂, q₂ and r₂ independently represent an integer from 1 to 3);



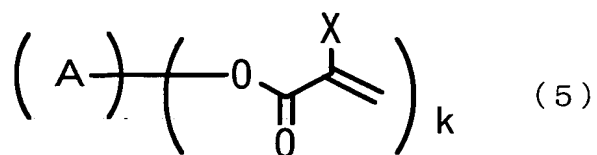
(wherein G represents



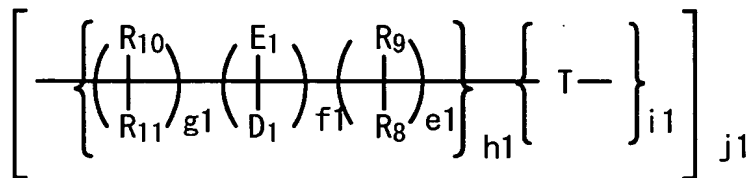
L represents



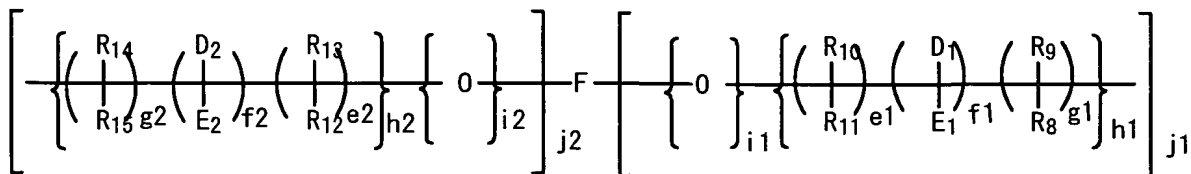
X_1 , X_2 , X_3 , Y_1 and Y_2 independently represent a hydrogen atom or a methyl group, R_{20} and R_{30} independently represent a hydrogen atom, a methyl group, an ethyl group, a hydroxyethyl group or a hydroxypropyl group, a_1 , a_2 and b independently represent an integer from 1 to 1000, and $\ast 1$ and $\ast 2$ represent a binding site capable of forming a bond with a residue except for G and L in the compound represented by the general formula (4)); and



(wherein A represents



or

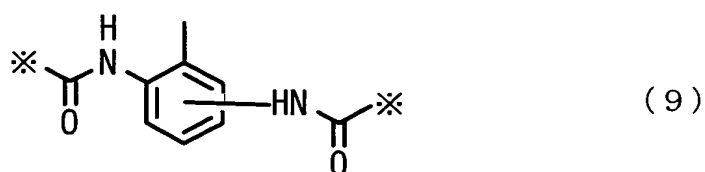
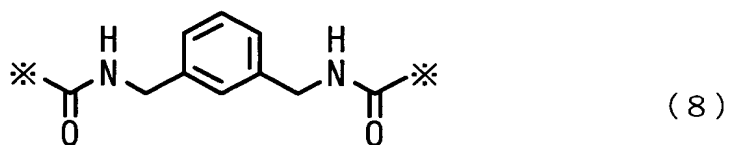
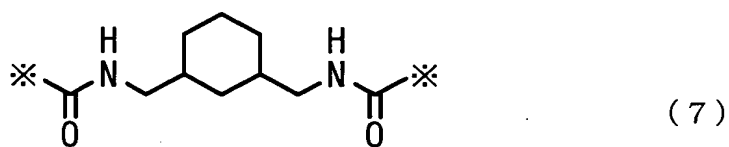
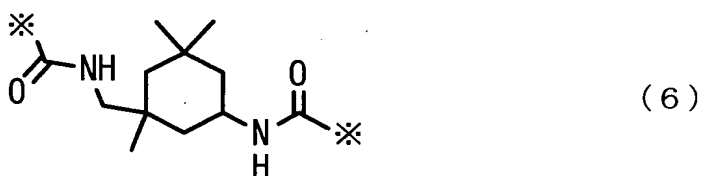


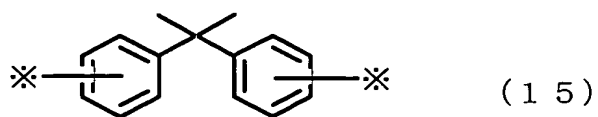
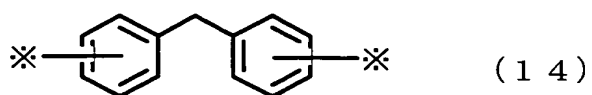
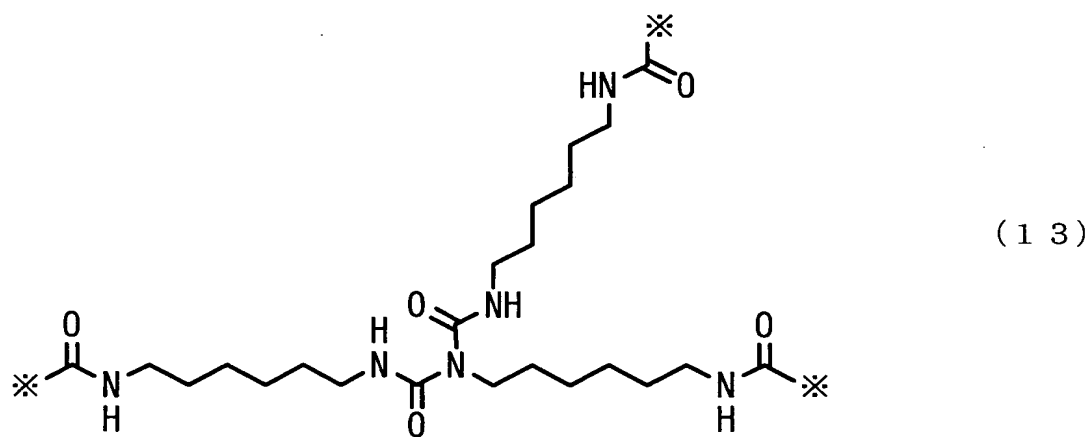
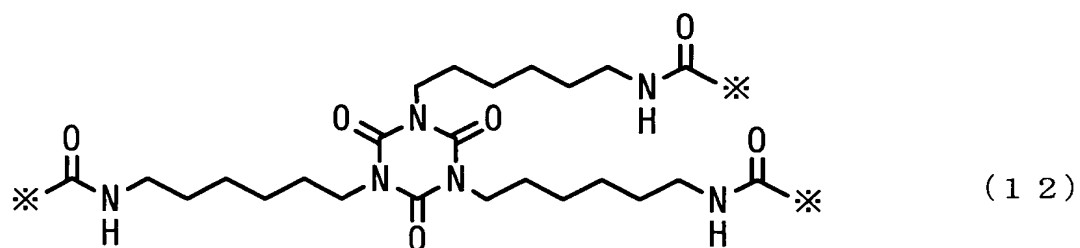
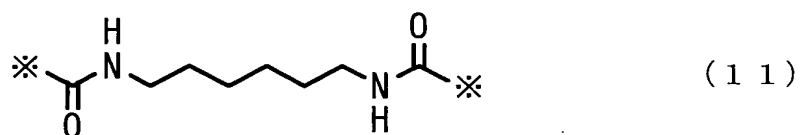
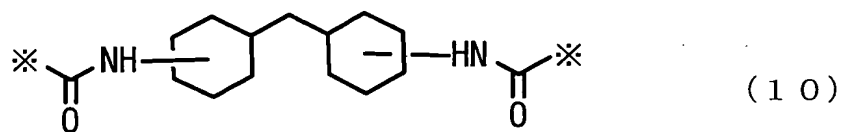
D_1 , D_2 , E_1 and E_2 independently represent a hydrogen atom, a

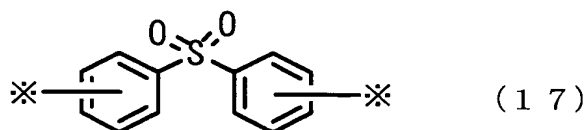
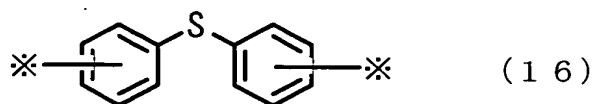
methyl group, an ethyl group, a (meth)acryloyloxy group or a (meth)acryloyloxymethyl group, R_8 to R_{15} independently represent a hydrogen atom or a methyl group, e_1 , e_2 , g_1 , g_2 , i_1 and i_2 independently represent an integer from 0 to 2, f_1 , f_2 , h_1 , h_2 , j_1 and j_2 independently represent an integer from 1 to 4, X represents a hydrogen atom or methyl, and k represents an integer from 2 to 6,

T is selected from an oxygen atom and an ester bond,

F represents an oxygen atom, an ester bond or a group selected from the following general formula (6) to general formula (18):

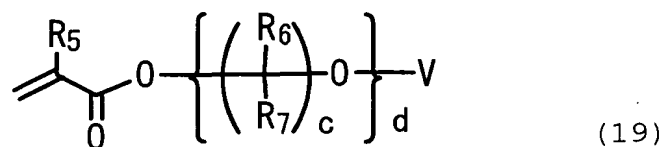




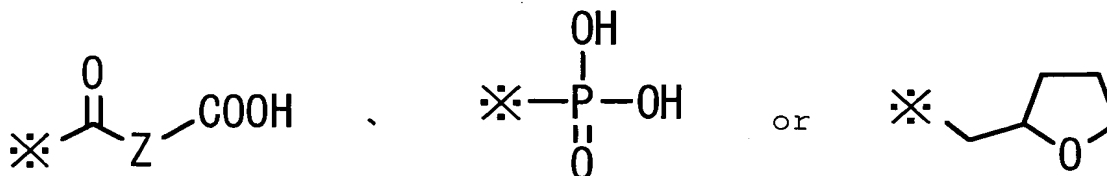


wherein * represents a bond).

3. An antifouling material comprising a copolymer obtained by copolymerizing the composition according to claim 1 which further comprises a compound represented by the following general formula (19):



(wherein R_5 represents a hydrogen atom or a methyl group, R_6 and R_7 independently represent a hydrogen atom, a methyl group or an ethyl group, c represents an integer from 2 to 6, d represents an integer from 0 to 3, V represents a hydrogen atom, a methyl group or



Z represents an alkylene group having 1 to 10 carbon atoms, a cycloalkylene group having 4 to 10 carbon atoms, or a phenylene group, and * represents a bond which binds to the oxygen atom).

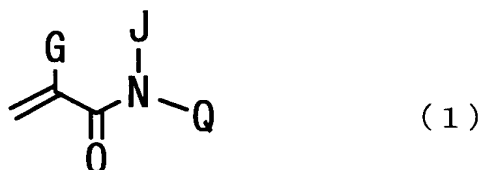
4. The antifouling material according to claim 2, wherein the transparency value of the copolymer obtained by copolymerizing the composition according to claim 2 is from 0.1 to 5.0.

5. The antifouling material according to claim 3, wherein the transparency value of the copolymer obtained by copolymerizing the composition according to claim 3 is from 0.1 to 5.0.

6. A copolymer obtained by copolymerizing a composition according to claim 2.

7. A copolymer obtained by copolymerizing a composition according to claim 3.

8. A laminated film characterized in that a polymer layer having a water contact angle of 45 degrees or less comprising a copolymer of a compound represented by the general formula (1) and a compound having at least one hydroxyl group and two or more (meth)acryloyl groups in the molecule is formed on one surface of a base material film:



(wherein G represents a hydrogen atom or a methyl group, J and Q independently represent a hydrogen atom, a methyl group, $-\text{CH}_2\text{OH}$, $-\text{CH}_2\text{CH}_2\text{OH}$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$, or $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$, with the proviso that the case where J and Q are simultaneously a combination of a hydrogen atom and a hydrogen atom, a combination of a hydrogen atom and a methyl group or a combination of a methyl group and a methyl group is excluded).

9. The laminated film according to claim 8 characterized by having an adhesive layer on the surface of the base material film on which the polymer layer is not formed.

10. The laminated film according to claim 9 characterized

in that a release film is laminated on the surface of the adhesive layer laminated on the base material film.

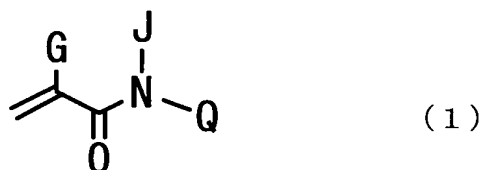
11. The laminated film according to any one of claims 8 to 10 characterized in that a releasable protective layer is laminated on the surface of the polymer layer having a water contact angle of 45 degrees or less.

12. The laminated film according to claim 8 characterized in that the laminated film can be obtained by forming a coating layer comprising a composition containing a compound represented by the general formula (1) and a compound having at least one hydroxyl group and two or more (meth)acryloyl groups in the molecule on one surface of a base material film, covering the surface of the coating layer with a cover film having a water contact angle of the surface to be in contact with the coating layer of 55 degrees or less, and then irradiating the coating layer with radiation.

13. An antifouling film comprising a laminated film according to any one of claims 8 to 12.

14. A method for producing a laminated film characterized by forming a coating layer comprising a composition containing

a compound represented by the general formula (1) and a compound having at least one hydroxyl group and two or more (meth)acryloyl groups in the molecule on one surface of a base material film, covering the surface of the coating layer with a cover film having a water contact angle of the surface to be in contact with the coating layer of 55 degrees or less, and then irradiating the coating layer with radiation, whereby the composition coating layer is copolymerized:



(wherein G represents a hydrogen atom or a methyl group, J and Q independently represent a hydrogen atom, a methyl group, $-\text{CH}_2\text{OH}$, $-\text{CH}_2\text{CH}_2\text{OH}$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$, or $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$, with the proviso that the case where J and Q are simultaneously a combination of a hydrogen atom and a hydrogen atom, a combination of a hydrogen atom and a methyl group or a combination of a methyl group and a methyl group is excluded).

15. The method for producing a laminated film according to claim 14 characterized in that the cover film is a film having a layer comprising a vinyl alcohol-based polymer on the surface to be in contact with the composition coating layer.

16. The method for producing a laminated film according to claim 14 or 15 characterized by having an adhesive layer on the other side of the surface of the base material film.

17. The method for producing a laminated film according to claim 16 characterized by laminating a release film on the surface of the adhesive layer.

18. The method for producing an antifouling film according to any one of claims 14 to 17, wherein the laminated film is an antifouling film.

19. A cladding material comprising an antifouling film according to claim 13.

20. An antifouling member characterized in that an antifouling film according to claim 13 is disposed on the surface thereof.

21. A guide plate or a sign board comprising an antifouling film according to claim 13 laminated on the surface.

22. An exterior wall comprising an antifouling film

according to claim 13 laminated on the surface.

23. A window glass comprising an antifouling film according to claim 13 laminated on the surface.